Claims

We Claim,

1. In a system for optimizing a portfolio of financial investments in order to increase total return for equivalent risk, which system includes assuming certain rates of return for various types of investments in the portfolio, the improvements comprising

   a. defining several accounts, each of which accounts have financial investments, each of which financial investment in the account being characterized in one or more asset classes, the financial investments in a particular asset class having a tax characteristic in common with one another,

   b. determining the contingent tax on each asset class by calculating the difference between the market value of the asset class and its tax basis multiplied by the expected effective tax rate upon liquidation,

   c. determining pre-tax and after-tax constraints on what investments are to be contained in the portfolio as to asset classes,

   d. transforming the pre-tax constraints and pre-tax investment characteristics into a set of after-tax constraints and investment characteristics, including after-tax expected returns and volatility estimates, and

   e. adjusting market values of financial assets in each portfolio to reflect the effect of the contingent tax on the assets.

2. The method set forth in claim 1 wherein the step of transforming the pre-tax constraints and pre-tax investment characteristics into a set of after-tax constraints and investment characteristics further includes, calculating after-tax returns and after-tax standard deviations for each asset class using corresponding pre-tax returns and pre-tax standard deviations.

3. In a method of creating a derived asset class using the characteristics of one or more predefined asset class, the improvement including the steps of

a. determining the pre-tax total return and risk characteristics of the one or more predefined asset classes,

b. calculating the pre-tax total return and risk characteristics of the derived asset class using such pre-tax total return and risk characteristics of the one or more predetermined asset classes,

c. determining the tax characteristics of the one or more predefined asset classes, and

d. calculating the tax characteristics of the derived asset class using the tax characteristics of the predefined asset classes.

4. A method of creating a derived asset class comprising

providing a standard asset having a predetermined standard deviation,

providing a standard deviation multiplier,

calculating the standard deviation of the derived asset class by

multiplying the predetermined standard deviation of the standard asset class by the standard deviation multiplier and the correlations of returns between the derived asset class and any other arbitrary asset class given by the correlations of returns between the standard asset class and the arbitrary asset class divided by the standard deviation multiplier.

5. The method set forth in claim 1 wherein transforming the pre-tax constraints and pre-tax investment characteristics into a set of after-tax constraints is according to the form:

$$BL <= B = \sum a_i * X_i <= BU \quad \text{for } i = 1 \text{ to N(number of individual asset classes)},$$

where

B represents a linear constraint specification,

BL represents a value of lower limit on a linear constraint,

BU represents a value of upper limit on a linear constraint,

X_i presents an allocation to each asset class, and

a_i represents a fixed portion of X_i typically between 0 and 1, usually 0(0%) or 1(100%).